

2. How Safe Is My Drinking Water?

2

What Law Keeps My Drinking Water Safe?

Congress passed the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating the nation's public drinking water supply and protecting sources of drinking water. SDWA is administered by the U.S. Environmental Protection Agency (EPA) and its state partners.

Highlights of the Safe Drinking Water Act

- Authorizes EPA to set enforceable health standards for contaminants in drinking water
- Requires public notification of water systems violations and annual reports (Consumer Confidence Reports) to customers on contaminants found in their drinking water - www.epa.gov/safewater/ccr
- Establishes a federal-state partnership for regulation enforcement
- Includes provisions specifically designed to protect underground sources of drinking water - www.epa.gov/safewater/uic
- Requires disinfection of surface water supplies, except those with pristine, protected sources
- Establishes a multi-billion-dollar state revolving loan fund for water system upgrades - www.epa.gov/safewater/dwsrf
- Requires an assessment of the vulnerability of all drinking water sources to contamination - www.epa.gov/safewater/protect

— *Drinking Water: Past, Present, and Future*
EPA-816-F-00-002

What Is A Public Water System?

The Safe Drinking Water Act (SDWA) defines a **public water system (PWS)** as one that serves piped water to at least 25 persons or 15 service connections for at least 60 days each year. There are approximately 161,000 public water systems in the United States.¹ Such systems may be publicly or privately owned. **Community water systems (CWSs)** are public water systems that serve people year-round in their homes. Most people in the U.S. (268 million) get their water from a community water system. EPA also regulates other kinds of public water systems,

Public Water Systems

Community Water System (54,000 systems)—A public water system that serves the same people year-round. Most residences are served by Community Water Systems.

Non-Community Water System (approximately 108,000 systems)—A public water system that does not serve the same people year-round. There are two types of non-community systems:

- *Non-Transient Non-Community Water System (almost 19,000 systems)*—A non-community water system that serves the same people more than six months of the year, but not year-round. For example, a school with its own water supply is considered a non-transient system.
- *Transient Non-Community Water System (more than 89,000 systems)*—A non-community water system that serves the public but not the same individuals for more than six months. For example, a rest area or a campground may be considered a transient system.

such as those at schools, campgrounds, factories, and restaurants. Private water supplies, such as household wells that serve one or a few homes, are not regulated by EPA. For information on household wells, see “How Safe Is The Drinking Water In My Household Well?” on page 18 of this booklet.

Cost of Making Water Safe Continues to Rise

Much of the existing water infrastructure (underground pipes, treatment plants, and other facilities) was built many years ago. In 1999, EPA conducted the second Drinking Water Infrastructure Needs Survey, and found that drinking water systems will need to invest \$150 billion over a 20-year period to ensure clean and safe drinking water.

Will Water Systems Have Adequate Funding In The Future?

Nationwide, drinking water systems have spent hundreds of billions of dollars to build drinking water treatment and **distribution systems**. From 1995 to 2000, more than \$50 billion was spent on capital investments to fund water quality improvements.²

With the aging of the nation’s infrastructure, the clean water and drinking water industries face a significant challenge to sustain and advance their achievements in protecting public health. EPA’s *Clean Water & Drinking Water Infrastructure Gap Analysis*³ has found that if present levels of spending do not increase, there will be a significant funding gap by the year 2019.

Where Can I Find Information About My Local Water System?

Since 1999, water suppliers have been required to provide annual Consumer Confidence Reports to their customers. These reports are due by July 1 each year, and contain information on contaminants found

in the drinking water, possible health effects, and the water’s source. Some Consumer Confidence Reports are available at www.epa.gov/safewater/dwinfo.htm.

Water suppliers must promptly inform you if your water has become contaminated by something that can cause immediate illness. Water suppliers have 24 hours to inform their customers of **violations** of EPA standards “that have the potential to have serious adverse effects on human health as a result of short-term exposure.” If such a violation occurs, the water system will announce it through the media, and must provide information about the potential adverse effects on human health, steps the system is taking to correct the violation, and the need to use alternative water supplies (such as boiled or bottled water) until the problem is corrected.

Systems will inform customers about violations of less immediate concern in the first water bill sent after the violation, in a Consumer Confidence Report, or by mail within a year. In 1998, states began compiling information on individual systems, so you can evaluate the overall quality of drinking water in your state. Additionally, EPA must compile and summarize the state reports into an annual report on the condition of the nation’s drinking water. To view the most recent annual report, see www.epa.gov/safewater/annual.

How Often Is My Water Supply Tested?

EPA has established pollutant-specific minimum testing schedules for public water systems. To find out how frequently your drinking water is tested, contact your water system or the agency in your state in charge of drinking water.

If a problem is detected, immediate retesting requirements go into effect along with strict instructions about how the system informs the public. Until the system can reliably demonstrate that it is free of problems, the retesting is continued.

In 2001, one out of every four community water systems did not conduct testing or report the results for all of the monitoring required to verify the safety

of their drinking water.⁴ Although failure to monitor does not necessarily suggest safety problems, conducting the required reporting is crucial to ensure that problems will be detected. Consumers can help make sure certain monitoring and reporting requirements are met by first contacting their state drinking water agency to determine if their water supplier is in compliance. If the water system is not meeting the requirements, consumers can work with local and state officials and the water supplier to make sure the required monitoring and reporting occurs.

4

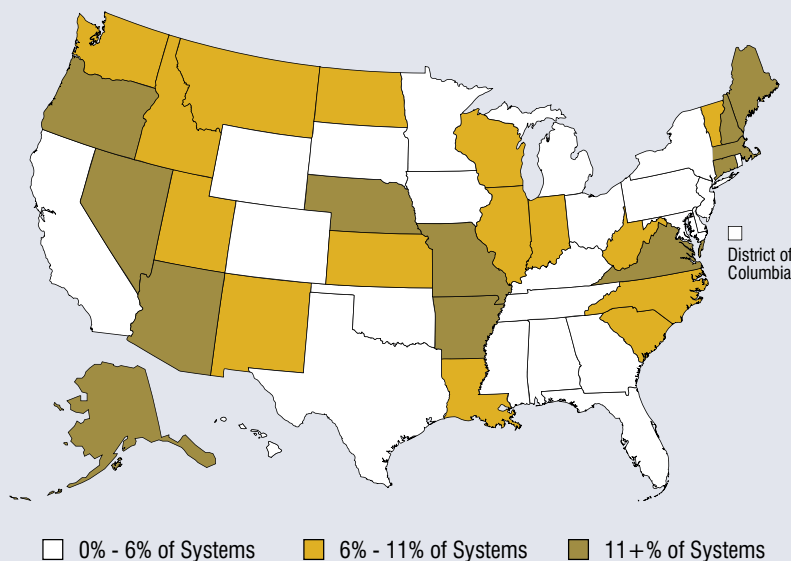
A network of government agencies monitor tap water suppliers and enforce drinking water standards to ensure the safety of public water supplies. These agencies include EPA, state departments of health and environment, and local public health departments.

Common Sources of Pollution

Naturally Occurring: microorganisms (wild-life and soils), radionuclides (underlying rock), nitrates and nitrites (nitrogen compounds in the soil), heavy metals (underground rocks containing arsenic, cadmium, chromium, lead, and selenium), fluoride.

Human Activities: bacteria and nitrates (human and animal wastes—septic tanks and large farms), heavy metals (mining construction, older fruit orchards), fertilizers and pesticides (used by you and others (anywhere crops or lawns are maintained)), industrial products and wastes (local factories, industrial plants, gas stations, dry cleaners, leaking underground storage tanks, landfills, and waste dumps), household wastes (cleaning solvents, used motor oil, paint, paint thinner), lead and copper (household plumbing materials), water treatment chemicals (wastewater treatment plants).

Reported Community Water Systems Violating Maximum Contaminant Levels or Treatment Standards in FY 2002




Nevertheless, problems with local drinking water can, and do, occur.

What Problems Can Occur?

Actual events of drinking water contamination are rare, and typically do not occur at levels likely to pose health concerns. However, as development in our modern society increases, there are growing numbers of activities that can contaminate our drinking water. Improperly disposed-of chemicals, animal and human wastes, wastes injected underground, and naturally occurring substances have the potential to contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or that travels through an improperly maintained distribution system, may also pose a health risk. Greater vigilance by you, your water supplier, and your government can help prevent such events in your water supply.

Contaminants can enter water supplies either as a result of human and animal activities, or because they occur naturally in the environment. Threats to your drinking water may exist in your neighborhood, or may occur many miles away. For more information on drinking water threats, see www.epa.gov/safewater/

publicoutreach/landscapeposter.html. Some typical examples are microbial contamination, chemical contamination from fertilizers, and lead contamination.



Boil Water Notices for Microbial Contaminants

When microorganisms such as those that indicate fecal contamination are found in drinking water, water suppliers are required to issue “Boil Water Notices.” Boiling water for one minute kills the microorganisms that cause disease. Therefore, these notices serve as a precaution to the public.
www.epa.gov/safewater/faq/emerg.html

Microbial Contamination:


The potential for health problems from microbial-contaminated drinking water is demonstrated by localized outbreaks of waterborne disease. Many of these outbreaks have been linked to contamination by bacteria or viruses, probably from human or animal wastes. For example, in 1999 and 2000, there were 39 reported disease outbreaks associated with drinking water, some of which were linked to public drinking water supplies.⁵

Certain **pathogens** (disease-causing **microorganisms**), such as *Cryptosporidium*, may occasionally pass through water filtration and disinfection processes in numbers high enough to cause health problems, particularly in vulnerable members of the population. *Cryptosporidium* causes the gastrointestinal disease, cryptosporidiosis, and can cause serious, sometimes fatal, symptoms, especially among sensitive members of the population. (See box on Sensitive Subpopulations on page 1.) A serious outbreak of cryptosporidiosis occurred in 1993 in Milwaukee, Wisconsin, causing more than 400,000 persons to be infected with the disease, and resulting in at least 50 deaths. This was the largest recorded outbreak of waterborne disease in United States history.⁶

*Excessive levels of nitrates
can cause
“blue baby syndrome,”
which can be fatal
without
immediate
medical attention.*

Chemical Contamination From Fertilizers:

Nitrate, a chemical most commonly used as a fertilizer, poses an immediate threat to infants when it is found in drinking water at levels above the national standard. Nitrates are converted to nitrites in the intestines. Once absorbed into the bloodstream, nitrites prevent hemoglobin from transporting oxygen. (Older children have an enzyme that restores hemoglobin.) Excessive levels can cause “blue baby syndrome,” which can be fatal without immediate medical attention. Infants most at risk for blue baby syndrome are those who are already sick, and while they are sick, consume food that is high in nitrates or drink water or formula mixed with water that is high in nitrates. Avoid using water with high nitrate levels for drinking. This is especially important for infants and young children, nursing mothers, pregnant women and certain elderly people.



Nitrates: Do NOT Boil

Do NOT boil water to attempt to reduce nitrates. Boiling water contaminated with nitrates increases its concentration and potential risk. If you are concerned about nitrates, talk to your health care provider about alternatives to boiling water for baby formula.

Lead Contamination:

Lead, a metal found in natural deposits, is commonly used in household plumbing materials and water service lines. The greatest exposure to lead is swallowing or breathing in lead paint chips and dust. But lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the **maximum contaminant level** can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. In adults, it can cause increases in blood pressure. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Very old and poorly maintained homes may be more likely to have lead pipes, joints, and solder. However, new homes are also at risk: even legally “lead-free” pipes may contain up to 8 percent lead. These pipes can leave significant amounts of lead in the water for the first several months after their installation. For more information on lead contamination, see www.epa.gov/safewater/contaminants/dw_contamfs/lead.html.



For more information on drinking water contaminants that are regulated by EPA, see Appendix A, or visit www.epa.gov/safewater/mcl.html.

Where Can I Find More Information About My Drinking Water?

Drinking water varies from place to place, depending on the water’s source and the treatment it receives. If your drinking water comes from a community water system, the system will deliver to its customers annual drinking water quality reports (or Consumer Confidence Reports). These reports will tell consumers what contaminants have been detected in their drinking water, how these detection levels compare to drinking water standards, and where their water comes from. The reports must be provided annually before July 1, and, in most cases, are mailed directly to customers’ homes. Contact your water supplier to get a copy of your report, or see if your report is posted online

at www.epa.gov/safewater/dwinfo.htm. Your state’s department of health or environment can also be a valuable source of information. For help in locating these agencies, call the Safe Drinking Water Hotline. Further resources can be found in Appendix C. Information on testing household wells is on page 19.



Lead: Do NOT Boil

Do NOT boil water to attempt to reduce lead. Boiling water increases lead concentration.

Always use water from the cold tap for preparing baby formula, cooking, and drinking. Flush pipes first by running the water before using it. Allow the water to run until it’s cold. If you have high lead levels in your tap water, talk to your health care provider about alternatives to using boiled water in baby formula.

- ¹ *Factoids: Drinking Water & Ground Water Statistics for 2002, 2003.*
- ² *Community Water Systems Survey 2000, Volume I, 2001.*
- ³ *The Clean Water and Drinking Water Infrastructure Gap Analysis*, EPA 816-R-02-020.
- ⁴ *Factoids: Drinking Water and Ground Water Statistics for 2001*, EPA 816-K-02-004.
- ⁵ *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks, United States 1999-2000, 2002.*
- ⁶ *25 Years of the Safe Drinking Water Act, 1999.*